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THE NEW YORK TIMES, SUNDAY, JULY 30, 1911. 3-2-4 A STOVE TO COOL THE HOUSE INSTEAD OF HEATING IT Alexander Graham Bell Invents an “Ice Stove” Which Makes His Rooms Cold in Summer, Just as a Coal Stove Would Make Them Hot in Winter.

Alexander Graham Bell.

File Physics II

It was in one of the hottest days of the hottest spell of this hot Summer. In the streets of the sweltering city the asphalt had softened to the consistency of tar.

Along aristocratic Connecticut Avenue the heat shimmered like a Sahara, while behind the closed shutters of the great mansions that lined its way the unfortunate dweller, not yet gone to the country, sat in negligee in the breeze of the fan, vainly striving to keep cool. For even there every house was a furnace.

Every house save one. Within a quiet study there sat an elderly gentleman deep in his work. He didn't have his coat off, nor did he pant and perspire and think evil thoughts of the weather man. For the thermometer on his desk registered a scant 61 degrees, and the elderly man was quite comfortable, thank you.

The city was Washington, the house was No. 1,331 Connecticut Avenue, and the elderly gentleman sitting so comfortably at his work the while his neighbors drooped and wilted in the heat was the discoverer of the telephone, the designer of many valuable improvements in aeronautics, and the inventor and scientist whose name is known beyond the seven seas, Prof. Alexander Graham Bell.

He wasn't suffering from the heat because, through a recent invention of his, he had turned his house, and notably this private study, into a cool oasis in the midst of the torrid city.

This invention is what, for want of a better name, has been termed an “ice stove.” Indeed, it might be termed a stove turned upside down or inside out or wrong end to, for it cools instead of heats, and the furnace man shovels in ice instead of coal. By its means Prof. Bell has been enabled to keep that intellectual workshop of his at a temperature like a crisp October day.

It is unique in the history of inventions in this, that for once the inventor, proverbially luckless, was the first to reap substantial benefit from it.

The manner of its invention was characteristic of the great scientist. This is what David Fairchild of the Department of Agriculture, son-in-law of Prof. Bell, tells of its birth:

“Early in the Summer Prof. Bell returned from a trip he had been making around the world. He was full of the fact that, while in India and other tropical countries, he had nowhere found any attempt on the part of the inhabitants to protect their dwelling houses against the intense heat.

“Accordingly, he began at once on his return to address his talents and experience to some means whereby the interior of houses may be cooled in Summer to a comfortable temperature, just as they are heated in Winter.

“Of course he knew that there were many devices, complicated and costly, whereby large structures might be kept reasonably cool, as in the case of the National Capitol building. But the problem to which he turned his attention was that of cooling the ordinary dwelling in some cheap and simple manner.

Library of Congress

“The weather came to his aid, for within a few days began that torrid period that marked part of June and early July. This spurred Prof. Bell on, and in a short time he had designed and constructed the apparatus which now so successfully cools his residence in Washington even in the hottest weather—and he lost small time in putting it to practical test. I think he is about as well satisfied with this latest product of his genius as with any of his great achievements.”

To the curious man, the first sight of the ice stove gives a feeling of disappointment.

“Is that all it is?” he thinks as he looks upon the simple apparatus, “merely an ice box and a fan and a couple of tin pipes!”

He forgets that in this very simplicity lies one of the great advantages of the stove. There are numberless cooling devices, full of complicated coils and chemicals with hyphenated names that require a professional chemist to operate.

But any one who can dump a cake of ice into a box and turn a switch at the electric light key can operate this cooling stove of Prof. Bell's.

This is the method of its construction, following exactly the stove now in use in Prof. Bell's house:

On the ledge of the window is set a small fan, about six inches in diameter. It is moved by a little electric motor attached by a wire to an electric light socket. The fan is inclosed in a casing. Under the lower sash of the window is set a board in which is a two and a half inch hole.

A short pipe connects this hole with the casing of the fan, thus supplying pure air from outdoors. Another pipe runs from this fan casing to a large wooden box.

In this box, which is about three feet broad and high and about four feet long, there are placed cakes of ice. The lid of the box fits with air-tight security. From the opposite side of the box to that wherein the pipe from the fan enters another pipe leads off to the quarters to be cooled. This pipe is heavily incased in asbestos packing.

The main pipe in the Bell house leads to Prof. Bell's study. After entering the room it runs down the wall until within about three inches from the floor. The end is open.

3-2-2

Prof. Alexander Graham Bell's Ice-Stove.

All that is necessary to cool the room is to turn on the electric current and start the fan. This draws in the air from the window pipe and drives it through the connecting pipe into the ice chest. Here the pressure of air from behind, due to the driving power of the fan, forces the current across the ice, thereby cooling it, and then on into the service pipe, whence it is discharged into the room to be cooled.

“There is one point in Prof. Bell's cooling system upon which he lays great stress,” said Mr. Fairchild in explaining the operation of the ice stove. “It is that the flooring of the room which is to be cooled, and the walls for several feet up, must be as nearly air-tight as possible in order to get the best results.

“It is well known that cold air is much heavier than hot. Hence, when cold air is introduced into a room it sinks through the lighter warm air and spreads itself along the floor much as water would do.

“Now, if the lower half of the air in a room is cold and there are many cracks and other apertures whence air may escape, it is clear that the cold air will flow rapidly away, just as water would. Hence, it is necessary, in the economical use of the ice stove, to keep this cold air from escaping.”

“But would not the air, thus confined, become vitiated by persons living in it?” Mr. Fairchild was asked.

“By no means,” he replied. “The constant supply of fresh air forced in by the fan will always keep the air of the room sweet and pure. The movement of the air caused by this influx of fresh air will always provide sufficient ventilation.

“When Prof. Bell came to make his first experiment with his ice stove,” continued Mr. Fairchild, “he found a room with air-tight floor and walls ready to his hand. In his house is a large swimming pool, with walls of glazed tiling. This pool he converted into a room, furnished it up comfortably—and found himself thus in a citadel, as it were, against which the fieriest day was impotent.”

It is said that Prof. Bell does not intend to patent this latest product of his brain, but will give the use of it to the public. Owing to his recent departure for Nova Scotia, however, this could not be ascertained, though that such is his benificent intention is shown by the fact that he planned to give a public lecture on the ice stove just before his departure, but was prevented by circumstances.

It is worthy of note that in constructing

Prof. Bell's Home in Washington, the Only Private House in the World Cooled Simply by Ice and Air.

DR. BELL'S MIND IS BRIGHTEST AFTER MID-NIGHT. “HE WORKS ALL NIGHT AND SLEEPS IN THE DAYTIME” PHOTO MADE IN 1913.

3-2-2

Prof. Bell's Study, Cooled by the Ice Stove. in the Hottest Weather This Summer the Thermometer Never Got Above 61 Degrees. (Cold Air Pipes Seen on Right, Near Waste Basket.)

this cooling system he did not find it necessary to depart in any material point from the design as he first conceived it, showing that his practical Scotch judgment is in no wise behind his creative genius.

“While there are minor imperfections in this system,” said Mr. Fairchild, “the theory is entirely correct. These imperfections will of course be remedied as they become manifest.”

What is the novel point in this new device is not that it cools air, or that it does so for the benefit of breathing mortals. It is that here is something that can be constructed by any mechanic and operated wherever there is electric power, or, indeed, any sort of motive energy sufficient to operate a small fan. It thus makes air cooling for the Summer something within the reach of almost every household.

The cost of power is small, and the amount of ice used can be regulated by the speed of the fan.

To those who cannot afford an elaborate chemical cooling plant or are not so fortunately situated as T. C. Northcutt of Luray, Va., whose house, built just over the great caverns there, is supplied by a current he has conducted thence through his dwelling, Prof. Bell's invention offers a most welcome relief from the tortures of the hot spell.

One need not go to the expense of buying a new ice box but may, as Prof. Bell did, convert an old one into an ice stove. Nor is one confronted with the dangers that always accompany ammonia and carbon-dioxide and such other uncouth chemicals now used in the making of cold air.

Perhaps, as has been suggested, even such motive power for the fan as electricity or other like forces may be dispensed with and the necessary breeze furnished by the humble house-dog in a tread-mill.

Certainly it cannot be very far in the future before we shall hear the lady of the house calling down stairs to her spouse who is putting out the cat:

“John, don't forget to put the ice in the stove; the weather man says there's going to be a hot spell.”